

NAVAL REACTORS
DOE DIRECTIVE IMPLEMENTATION BULLETIN NUMBER 231.1B-94,
REVISION 4

Consistent with the Naval Nuclear Propulsion Program (NNPP) overall concept of operations, the following provides specific implementation guidance for ENVIRONMENT, SAFETY, AND HEALTH REPORTING for those activities under the Director's cognizance.

The guidance takes precedence over Department of Energy (DOE) Order 231.1B series ENVIRONMENT, SAFETY, AND HEALTH REPORTING and guidance found in other DOE related documents.

1. The duties and responsibilities delineated in the Order for various DOE headquarters components are carried out by Naval Reactors in accordance with existing Program procedures and practices. Involvement of other DOE headquarters offices shall be initiated by Naval Reactors as appropriate.
2. Paragraph 4.d requires documenting status of safety bases for hazard category 1, 2, and 3 nuclear facilities in the Safety Basis Information System (SBIS). NNPP facilities shall not document safety bases in the SBIS unless specifically required by Naval Reactors Headquarters.
3. Paragraph 5.a(5) requires Heads of Headquarters Elements to notify the Chief Health, Safety, and Security Officer of suspected excess illnesses that may require epidemiologic investigations to determine whether the illnesses are work-related. Where applicable, the Director, NNPP, will establish the necessary provisions for performance of epidemiological studies at Naval Nuclear Propulsion Program facilities and activities.
4. Paragraph 5.b assigns responsibilities to Heads of Field Elements for various reporting functions. Manager, Naval Reactors Laboratory Field Office, or designated Assistant Managers for Operations, shall fulfill the responsibilities of this paragraph, except as delineated elsewhere in this IB.
5. Reporting of information on environment, safety, and health matters by NNPP DOE sites shall be as required in Attachments 2 and 3 of DOE O 231.1B, subject to the following:
 - a. Attachment 2 requires annual reporting to the Chief Health, Safety, and Security Officer of information on property clearance activities, including approved Authorized Limits, results of radiological monitoring and surveys of cleared property, and independent verification program results. Property clearance activities shall be performed as required by Article 520 of NAVSEA 389-0288, Radiological Controls, and

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LAB-RC-0288, Radiological Controls Manual. Naval Reactors Headquarters shall make reports on property clearance activities as deemed necessary.

b. Attachment 2 requires field elements to prepare an annual summary of environmental data so as to characterize site environmental management performance. The report is to be submitted to the Chief Health, Safety, and Security Officer. The current format and content of annual site environmental monitoring reports satisfy this requirement and shall remain unchanged. The cognizant prime contractor shall submit the report to Naval Reactors for review and approval by March 31 of the following year. Final reports shall be distributed by the Naval Reactors Headquarters.

c. Paragraph 1 of Attachment 3 contains requirements for injury and illness recordkeeping and reporting. Injury and illness recordkeeping and reporting shall be executed in accordance with Article 107 of NAVSEA S9213-55-MAN-000/(U), Naval Reactors Safety Requirements Manual. Naval Reactors Laboratory Field Office and prime contractors shall continue to submit injury/illness and total work hours reports to the Computerized Accident/Injury Reporting System (CAIRS) by the 10th working day following the end of each quarter. No additional actions or changes in NNPP requirements are needed to implement Paragraph 1 of Attachment 3.

d. Paragraph 2.a of Attachment 3 requires retention of injury illness records in accordance with DOE O 243.1, RECORDS MANAGEMENT PROGRAM and DOE Administrative Records Schedule 1: Personnel Records. Retention of injury and illness records shall be in accordance with Article 107 of NAVSEA S9213-55-MAN-000/(U) and NNPP implementation of DOE O 243.1.

e. Paragraph 3 of Attachment 3 requires submission of annual site fire protection information summaries to the DOE fire protection database. Naval Reactors DOE sites will follow the requirements of Naval Reactors IB 420.1B-81 for annual fire protection reports.

6. Attachment 4 of DOE O 231.1B contains requirements for reporting occupational exposure to ionizing radiation. Naval Reactors field offices and prime contractors shall report occupational exposure of employees, subcontractors, and visitors to ionizing radiation in accordance with these requirements and the Radiation Exposure Monitoring System (REMS) Reporting Guide (<http://energy.gov.ehss/policy-guidance-reports/databases/occupational-radiation-exposure>), subject to the following implementation guidelines:

a. Occupational radiation exposure reports shall be prepared and provided in accordance with Article 238 of LAB-RC-0288 vice 10 CFR 835.

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b. For clarity, extremity monitoring results shall be documented as the sum of the extremity thermoluminescent dosimeter (TLD) results for the extremity, plus the equivalent dose to the skin of the whole body, including the neutron dose, for the period of time extremity TLDs were not worn (see the REMS reporting guide Table G-1). If extremity TLDs were never worn during the year, the data field shall be left blank.

c. Table G-1 of the REMS Reporting Guide requires reporting Committed Effective Dose (CED) for uptakes. For individuals who were not monitored for external radiation exposure in the reporting year, only internal monitoring resulting in a CED greater than zero shall be reported. CED shall be reported for all personnel who participated in a bioassay program (including whole body or lung count) and were also monitored for external radiation exposure.

d. The REMS Reporting Guide requires reporting Committed Equivalent Doses (CEqD, referred to as Committed Dose Equivalent in LAB-RC-0288 and NAVSEA 389-0288) to the various organs associated with the 1990 International Commission on Radiological Protection internal dosimetry model (ICRP 68). These organ doses, if calculated and entered into ARCMIS, shall be included in the report in the columns designated in Table G-1.

e. Table G-1 of the REMS Reporting Guide contains employee codes for reporting exposure data: E for general employees, employees of the reporting organization, visiting researchers, or students; P for members of the general public, including visiting dignitaries; and G for "Special Individuals" defined in Attachment 4, paragraph 2.a of the Order. Program facilities shall use the code "E" for prime contractor employees as well as subcontractors employed at the facility by the prime contractor. In addition, Government employees assigned to Program DOE field offices and visitors that are government employees (local, state, or federal) shall be coded "G". All other visitors, including civilian personnel from Program non-DOE facilities (e.g., Naval shipyards), shall be coded "P".

f. Exposure reports for U.S. Navy personnel shall be submitted to BUMED in accordance with U.S. Navy directives. No active duty Navy personnel are to be included in the report to DOE. Contractors shall submit all other required reports to the local Naval Reactors field office by March 1 of each calendar year to support transmittal of contractor reports to the REMS Repository.

g. DOE visitors outside of the Naval Reactors Program who received exposure at Naval Reactors DOE facilities will be reported in accordance with DOE O 231.1-1B. A letter will be transmitted to the visitor's parent organization with a copy to the individual and the REMS Repository within 30 days after the results are known. The transmission of visitors' exposure data shall be in compliance with all

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applicable requirements for protection of Personally Identifiable Information (PII). These visitors and their doses shall not be included in the Naval Reactors DOE facilities' annual reports.

h. Program facilities shall include in the annual report the dose received by Program personnel during off-site visits to non-DOE facilities. Doses received during visits to other Program DOE facilities shall be included in the individual's parent organization's annual report. The visited DOE facility will not report radiation exposure monitoring for visitors from DOE facilities within the Naval Reactors Program (including BPML) with the exception of Naval Reactors Headquarters civilian personnel.

i. For Program DOE (e.g., Knolls, Bettis, BPML) personnel traveling to other non-Program DOE facilities (e.g., ORNL, Sandia, LLNL), the visited facility shall report the doses to DOE. Any exposure incurred during such travel shall not be reported as part of the total reported dose to DOE by the Program parent organization. If the only dose to a Program DOE individual during a reporting year is dose incurred during a visit to another non-Program DOE facility, then this individual shall be deleted from the DOE report of the parent organization.

j. Reporting Examples

(1) Example 1: An individual traveled from Knolls to Bettis and received a deep and shallow dose of 10 mrem during the trip.

REPORTING: The parent organization, Knolls, reports the doses to DOE. Bettis does not report the doses.

(2) Example 2: An individual traveled from Knolls to ORNL and received deep and shallow doses of 2 mrem and a CEDE of 16 mrem. The individual was also monitored at Knolls (receiving deep and shallow doses of 3 mrem during the reporting year), and also traveled to Nuclear Fuel Services (NFS) (receiving 0 mrem deep and shallow dose and 1 mrem CEQD) during the reporting year.

REPORTING: Knolls includes the individual on the DOE report, but subtracts the ORNL doses from the totals reported to DOE because ORNL will report them. Knolls includes the doses from NFS on the DOE report because NFS is not a DOE facility, and the doses incurred were due to Program business.

(3) Example 3: An individual traveled from Knolls to INL to observe a test and receives 1 mrem deep and shallow dose. No other monitoring for the individual is required during the year.

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REPORTING: The individual is eliminated from the Knolls DOE report. INL reports the doses to DOE.

(4) Example 4: An individual declared a pregnancy in June 2014 and was monitored for occupational radiation exposure at her site during the 2014 reporting year. The pregnancy terminated in March 2015, but the employee was not monitored for occupational radiation exposure in 2015.

REPORTING: The parent organization's 2015 monitoring year report includes the equivalent dose to the fetus.

(5) Example 5: A Knolls employee stationed at NFS received 0 mrem CEDE and 0 mrem CEqD to the lungs as determined by air sampling. The employee was not monitored for external radiation exposure during the reporting period.

REPORTING: The individual is not reported on the Knolls DOE report.

SPECIAL NOTE: ALL OF THE DOSE IN THE ABOVE EXAMPLES SHALL BE INCLUDED IN THE ARTICLE 238 REPORT TO NAVSEA.

Naval Reactors shall be consulted prior to making any ARCMIS database structure changes in support of preparing the DOE O 231.1-1B report. If the report can be generated in the format needed without a database structure change, Naval Reactors need not be contacted.

k. Paragraph 1 of the REMS Reporting Guide requires exposure data files to be error checked using the REMSView program provided by the REMS repository. All errors detected by REMSView shall be resolved prior to submittal of the report.

l. REMS reports shall be forwarded to the appropriate Naval Reactors field office by March 1 of each calendar year to support transmittal to DOE by March 31 as required by DOE O 231.1B. Naval Reactors will upload exposure data to REMS via a secure DOE website. Naval Reactors DOE facilities shall submit properly formatted exposure reports as encrypted electronic files via the NR Wide Area Network (NRWAN) to the local Naval Reactors field office. The encryption key for the files shall be provided separately. Naval Reactors DOE facilities shall transmit a letter to the local Naval Reactors field office documenting transmission of the required exposure reports via the NRWAN. Hardcopies of the exposure reports shall not be provided with the letter to the local Naval Reactors field office. The letter documenting transmission of the electronic file to the local field office shall contain the administrative information required by paragraph 1 of the REMS Reporting Guide. The local Naval Reactors field office shall

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electronically forward the encrypted reports to the Naval Reactors Radiation Health Program Manager via the NRWAN. The local Naval Reactors field office shall issue a memorandum to the Director, Naval Nuclear Propulsion Program documenting the forwarding of the reports to Naval Reactors.

m. For revised reports, if the individual's name has changed since the previous submittal, use the same name as reported previously and provide the new name and explanation in the Comment field.

n. For cases where more than one fetal dose is documented for the same individual during the reporting year, the larger of the fetal doses should be entered in the fetal dose field, with the dose to each fetus in chronological order provided in the Comment field.

7. Attachment 5 of DOE O 231.1B provides requirements for reporting radioactive sealed source information. LAB-RC-0288 and NAVSEA 389-0288 contain requirements for control and accountability of radioactive sources in the NNPP. These requirements, along with NNPP security practices, are sufficient to safeguard against loss, theft, diversion, and unauthorized access or use of sealed radioactive sources. NNPP activities shall implement the requirements of Attachment 5 of DOE O 231.1B, with the following exceptions and clarifications:

a. Paragraph 1.b defines accountable radioactive sealed sources as sources that meet the criteria of 10 CFR 835, Appendix E. For NNPP activities, all radioactive sources are tracked in an accountability system. Therefore, at NNPP facilities, the reporting requirements of DOE O 231.1B shall apply to radioactive sealed sources that meet the criteria of the International Atomic Energy Agency (IAEA) Category 1 or Category 2 sources and are listed in Appendix E of 10 CFR 20. The list of Category 1 and Category 2 quantities of radioactive sealed sources is contained in Appendix A of Attachment 5 to DOE O 231.1B. Category 1 and Category 2 sources shall be referred to as Nationally Tracked Sources.

b. Paragraph 1.b requires reporting of Nationally Tracked Sources to the Radiological Source Registry and Tracking (RSRT) database. NNPP inventory and transaction data shall be transmitted to NRLFO, Assistant Manager for Operations – Pittsburgh (AMO-P) in a timely manner via the NRWAN, as detailed elsewhere in this IB, and NRLFO, AMO-P will make reports electronically to NR. NR will make any changes to the RSRT database.

c. Paragraph 1.d(4) states that the RSRT will be maintained as Controlled Unclassified Information. Therefore, reports to the RSRT shall not include

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classified or unclassified Naval Nuclear Propulsion Information. Reports to the RSRT shall be marked as Official Use Only.

d. Paragraph 2.c requires correction of missed or incorrect inventory or transaction reports for Category 1 or Category 2 sources within five business days of discovering the error or omission. To support NRLFO, AMO-P transmission of corrected inventory reports or missed transaction reports, sites shall electronically transmit corrections via the NRWAN to NRLFO, AMO-P within three business days of discovering the error with a letter to follow within ten business days; NRLFO, AMO-P shall electronically transmit the corrected reports to NR within two business days of receipt.

e. Paragraph 3 requires assignment of unique serial numbers to Nationally Tracked Sources. NAVSEA 389-0288 and LAB-RC-0288 requirements for assigning unique serial numbers to sources are sufficient to meet this requirement.

f. Paragraph 4 contains requirements for the facility's initial baseline inventory of Nationally Tracked Sources. Baseline inventories of Nationally Tracked Sources shall be transmitted to NRLFO, AMO-P by letter. The inventory of sources shall contain the information required by DOE O 231.1B, LAB-RC-0288, and NAVSEA 389-0288, as appropriate. Guidance for completing specific fields of the report includes:

(1) Multiple radionuclides in one source greater than Category 1 or Category 2 activities shall be reported as a single source. The activity of each radionuclide greater than the corresponding Category 2 value shall be included in a single report. Only sources with at least one radionuclide greater than the Category 1 or 2 activity values shall be reported (i.e., multiple radionuclide sources with no individual radionuclide activity higher than the Category 1 or 2 values will not be reported).

(2) Source activities will be reported in units of Curies (Ci).

(3) The Reporting Identification Symbol (RIS) code shall be the RIS code for NRLFO-Pittsburgh.

(4) The site and facility/building name will be provided by facilities in reports to NRLFO, AMO-P. However, the site and facility/building name will not be provided to the RSRT. Instead, all reports provided to the RSRT shall list NRLFO in the site field.

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(5) The source description field shall contain a short physical description of the source (e.g., liquid aliquot, RADIAC calibrator, etc.). Refer to CG-RN-1, DOE-DOD Classification Guide for the Naval Nuclear Propulsion Program, and OPNAV Instruction N9210.3, Safeguarding of Naval Nuclear Propulsion Information, to ensure source descriptions are neither classified nor unclassified Naval Nuclear Propulsion Information.

(6) For reports submitted to the RSRT database, the name and phone number of the individual preparing the report shall be the name and phone number of the NRLFO, AMO-P personnel responsible for transmitting the reports to NR.

g. Paragraph 5 requires annual verification of the site's source inventory against the inventory in the DOE RSRT database. Annually, NRLFO, AMO-P (with the assistance of the local Naval Reactors field offices), will verify each site's inventory of Nationally Tracked Sources provided to NRLFO, AMO-P against the site's inventory in the RSRT database and report the results to NR Headquarters within two weeks after the end of the calendar year. NR will provide verification of the inventory to the RSRT database within three weeks after the end of the calendar year.

h. Paragraph 6 contains requirements for reporting transactions of select Category 1 and Category 2 radioactive sealed sources to the RSRT database. NNPP shore facilities shall ensure that transactions of Nationally Tracked Sources, as defined in DOE O 231.1B, are reported to NRLFO, AMO-P electronically via the NRWAN within three business days of the transaction to support NRLFO, AMO-P making transaction reports to NR within five business days of the transaction. NNPP shore facilities shall issue transaction reports via letter to NRLFO, AMO-P within ten business days of the transaction. NRLFO, AMO-P shall only forward transaction reports involving a non-NNPP organization to the RSRT (e.g., a transfer of a Nationally Tracked Source between two NNPP sites will require transaction reports from the NNPP sites to NRLFO, AMO-P but NR will not forward the transaction reports to the RSRT). Transaction reports forwarded by NRLFO, AMO-P to the RSRT shall list NRLFO as the NNPP organization involved in the transaction (i.e., NRLFO shall be listed as shipper, receiver, etc., as appropriate).

i. Paragraph 7 requires annual reconciliation and verification of each site's RSRT inventory. Modifications made to a site's RSRT inventory as a result of reconciliation or verification must be submitted as a transaction report in accordance with paragraph 7.d of this IB.

j. Paragraph 8 requires sites to verify the authority of a recipient to receive accountable radioactive sealed sources. NNPP sites shall follow LAB-RC-0288

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and NAVSEA 389-0288 requirements, as appropriate, for shipping of radioactive material.

k. Paragraph 9 contains requirements for documentation and maintenance of records. This IB is sufficient documentation of inventory and accountability reporting procedures as required by DOE O 231.1B. Maintenance and storage of records shall be per current NNPP requirements.

8. Requests for waivers and exceptions to specific requirements of DOE O 231.1B or this IB will be submitted to NR Headquarters for approval.

9. Oversight and evaluation of ENVIRONMENT, SAFETY, AND HEALTH REPORTING matters under the Director's cognizance will be conducted by NRLFO with additional oversight provided by NR Headquarters.

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